

REMARKS

Examiner M. Good Johnson is thanked for the thorough examination and search of the subject Patent Application. The Abstract has been amended.

All Claims are believed to be in condition for Allowance, and that is so requested.

The Abstract has been amended to reduce the word count.

Reconsideration of Claims 1-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Guerlain et al (U.S. 6,587,108) is requested based on the following remarks.

Applicant agrees that Guerlain et al teaches an apparatus/method to display process data. However, Applicant believes that a careful analysis of Guerlain et al reveals that Guerlain does not teach nor suggest the claimed invention as recited in, for example, Claim 1. In particular, Applicant finds the following significant differences between the teachings of Guerlain et al and those of Applicant's claimed invention:

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- (1) Guerlain et al teaches displaying processing data but not by means of a bar chart as taught in Applicant's claimed invention.
- (2) Guerlain et al only uses a bar chart to display operating limits that are pre-set by the engineer.
- (3) The actual data is displayed by an arrow directed to a vertical scale.
- (4) Variance data is not displayed on a filled/non-filled bar chart as in the present invention.
- (5) Displaying a first variable above and a second or third variable below a stage, in bar chart form, is not taught nor suggested by Guerlain et al.

These key differences between the teachings of Guerlain et al and the teachings of Applicant's claimed invention will be highlighted below in a detailed analysis of Applicant's invention and of Guerlain et al.

Referring first to Applicant's invention, Claim 1 reads:

1. (Original) A data processing and display method for use in interactive manufacturing process management comprising:
uploading a first variable value for a manufacturing stage from a database;

5 subtracting said first variable value from a first
target value to obtain a first variable variance;
displaying a first variable variance bar above a stage
axis on a graphical display device wherein said first
variable variance bar is non-filled if said first variable
10 variance is positive and is filled if said first variable
variance is negative;
uploading a second variable value for said
manufacturing stage from said database;
subtracting said second variable value from a second
15 target value to obtain a second variable variance;
displaying a second variable value bar below said
stage axis on said graphical display device wherein said
second variable value bar is non-filled; and
displaying a second variable variance bar below said
20 second variable value bar on said graphical display device
if said second variable variance is positive wherein said
second variable variance bar is filled.

Several features of Claim 1 should be noted. First, the first variable variance is displayed as a first bar above a stage axis (lines 7-8). Second the fill/non-fill state of this first bar indicates positive/negative variance (lines 8-11). Third, the second variable value is displayed as a second bar below the

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stage axis (lines 16-17). Fourth, the second variable variance is displayed as a third bar below the stage axis (lines 19-20). Fifth, the fill/non-fill state of this third bar indicates positive/negative variance (lines 21-22). The above described key features of Claim 1 are illustrated in Fig. 3 and described in the Specification on pages 11-15.

Referring now to Guerlain et al, Figs. 7A-7C and 11 appear to show bar gages that display process data. Several important features of these displays should be noted. First, referring particularly to Fig. 7A, a process variable gauge interface 256 is illustrated. This interface 256 is repeated in Figs. 7B and 7C and in multiple times in Fig. 11. In the description, column 18, lines 43 through column 19, line 14, Guerlain et al states (bold added for emphasis):

"The process variable gauge interface 256 includes a process variable gauge 280 which includes a gauge axis 285 (not generally displayed on the screen) and a scale 282 extending along and parallel with the gauge axis 285. One or more bars 284 extend along the gauge axis 285. **Each bar is representative of a set of high and low process limit values for a particular process variable. Further, a graphical shape such as a pointer 297 is displayed along the gauge axis 285 representative of the**

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current value of the process variable. Although the graphical bar elements 284 extending along the gauge axis 285 may represent any number of different types of limits relative to the specific process variable, preferably, **the graphical bar element or elements 284 represent one of engineering hard limit values and operator set limit values.** Optionally, one or more additional graphical shapes, e.g., pointer 298, may be positioned along the scale 282 indicating one or more predicted values for the process variable. For example, the predicted value may be a future value or may be a steady state predicted value. Further, the additional graphical shape(s) could be used to indicate historical values, e.g., a mean value, extreme values, etc."

"As shown in FIG. 7A, the one or more graphical bars 284 include a first bar 281 extending along the gauge axis 285. **A first upper end 286 of the first bar 281 is representative of an engineering hard high limit, and a second end 288 is representative of an engineering hard low limit.** Further, preferably, the one or more graphical bar elements 284 include a second bar 283, preferably displayed inside the first bar 281. **The second bar 283 is representative of operator set limits.** A first end 290 of the second bar 283 is representative of an operator set high limit and a second end 291 of the second bar

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283 is representative of an operator set low limit. It will be noted that the limits are also shown in textual form beside the gauge. For example, the engineering high hard limit value is shown in textual field 301, the operator set high limit value is shown in textual field 302, the operator set low limit value is shown in textual field 304, and the engineering hard low limit is shown in textual field 305. The current value of the process variable is shown in textual field 303."

Several important observations should be made regarding the teachings of Guerlain et al. First, the above described figures are the only part of Guerlain et al that concerns graphical depiction of data using bars. Second, Guerlain et al is only using bars to depict hard engineering or operating limits that have been input into the machine. Guerlain et al is not using bars to depict the actual processing data. Third, Guerlain et al is displaying actual data using an arrow directed to a vertical scale, not by using bars. Fourth, no variance data is not displayed by Guerlain et al and no filled/non-filled bar chart is used. Fifth, displaying a first variable above and a second or third variable below a stage, in bar chart form, is not taught nor suggested by Guerlain et al.

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From the above observations, Applicant believes that the teachings of Guerlain et al clearly differs from Applicant's claimed invention as recited in Claim 1 and, further, as also recited in independent Claims 8 and 12. Applicant believes that Guerlain et al does not teach or suggest the key features of Applicant's claimed invention as recited in Claim 1, notably the features of displaying the first variable variance as a first bar above a stage axis (lines 7-8), using the fill/non-fill state of this first bar to indicate positive/negative variance (lines 8-11), displaying the second variable value as a second bar below the stage axis (lines 16-17), displaying the second variable variance as a third bar below the stage axis (lines 19-20), and using the fill/non-fill state of this third bar to indicate positive/negative variance (lines 21-22). Guerlain et al does not appear to teach or to suggest these features such that it would have been obvious to one skilled in the art at the time of the present invention to practice the present invention. Therefore, Applicant respectfully requests that the rejection of independent Claims 1, 8, and 12 under 35 U.S.C. 103(a) be removed. Finally, Claims 2-7, 9-11, and 13-20 represent patentably distinct, further limitations on independent Claims 1, 8, and 12, respectively, and should not be rejected under 35 U.S.C. 103(a) if the rejections of the independent claims are removed.


Reconsideration of Claims 1-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Guerlain et al (U.S. 6,587,108) is requested based on the above remarks.

Applicants have reviewed the prior art made of record and not relied upon and have discussed their impact on the present invention above.

Allowance of all Claims is requested.

It is requested that should the Examiner not find that the Claims are now Allowable that the Examiner call the undersigned at 989-894-4392 to overcome any problems preventing allowance.

Respectfully submitted,

A handwritten signature in cursive script, reading "Douglas R. Schnabel".

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